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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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10/828,979

04/21/2004

Patrick A. Hellandbrand JR.

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08/11/2005

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EXAMINER

AWAI, ALEXANDRA F

ART UNIT

PAPER NUMBER

3663

DATE MAILED: 08/11/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|--------------------------------------|--|--|
| Office Action Summary | Application No. 10/828,979 | Applicant(s) HELLANDBRAND ET AL. | |
| | Examiner Alexandra Awai | Art Unit 3663 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 July 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 and 13-15 is/are pending in the application.
- 4a) Of the above claim(s) 1-10 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 11 and 13-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 4/24/2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Claims 1-10 have been withdrawn, and claim 12 has been cancelled. Original claims 13 and 14, and amended claims 11 and 15 regarding elected Group III have been examined.

Applicant's arguments filed 7/1/2005 have been fully considered.

Drawings

2. The drawings are objected to under 37 CFR 1.83(a) because the views of the lowermost grid assembly insert fail to clearly show the relative location of the threaded fitting (Fig. 9, article 88) as described in the specification and amended claim 11. This is due in part to the fact that it is not clear which of the hatch-marked areas in Fig. 10 are meant to illustrate the lower end (Fig. 8, article 62), and the end fitting (Fig. 9, article 84). Additionally, the portion of the retention lip pictured in Fig. 10 near the numeral indicator "58" seems to preclude the extension of the threaded fitting into the bore defined by the lower nozzle.

Any structural detail that is essential for a proper understanding of the disclosed invention should be shown and indicated in the drawing such that its identity and relationship with adjacent components is unambiguous. For the present application, in order that the construction of the lowermost grid assembly insert be perfectly clear to one skilled in the art, any features indicated with numbers in either the exploded (Fig. 9) or the cut-away (Fig. 10) view should be indicated with numbers in *both* views if they are pictured in both views. The cut-away view should be presented such that the aforementioned inconsistencies with the specification and amended claim 11 are resolved.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any

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evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 11, and 13-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Patterson *et al* (U.S. 3,791,466), and further in view of Brosset *et al* (5,852,644).

As set forth by the previous examiner (see Office Action dated 2/11/05), Patterson *et al* disclose a structure that is substantially equivalent to the device being claimed. Said structure comprises:

- a plurality of guide tubes having integrally formed plugs (Fig. 3, article 40) with threaded inner surfaces that secure a corresponding mechanical fastener that may be described as either a screw or a bolt (Fig. 3, article 38)
- a grid insert (Figs. 10 and 12) substantially similar to the grid insert disclosed by the applicant
- a grid assembly disposed at one end comprising every physical attribute of the applicant's "lowermost grid assembly".
- a plurality of intermediate grid assemblies that conform in every respect to the device of applicant independent claim 11.
- a plurality of fuel rods held in place by the grid assemblies.

Patterson *et al* does not explicitly claim the limitations of an internally threaded fitting of reduced diameter formed to the guide tube (*re* applicant claim 11) or the use of welding to secure portions of the prior art device (*re* applicant claims 13 and 14). All limitations other than those

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mentioned in the previous sentence are explicitly encompassed by the Patterson *et al* invention as outlined above.

As Patterson *et al* repeatedly state, welding is a conventional means of securing or attaching elements of nuclear fuel assemblies (e.g. column 1, lines 12-17) and hence utilizing various well-known methods of welding is a matter of choice for the skilled nuclear artisan, rather than an issue of progressive innovation. In fact, Patterson *et al* decide *against* using the conventional means, welding, in order to *augment* the long-term structural integrity of the grid insert-cell connection, and the applicant's argument that welded joints are necessarily stronger is not compelling. It would have been *prima facie* obvious to use welding or, more specifically, intersection welds, to secure the grid insert to the fuel assembly if one skilled in the art were motivated to use a simple, inexpensive and well-known method of attachment.

Brosset *et al* disclose a guide tube having an integral plug with internal threading (Figs. 1 & 2, article 26) corresponding to the combination of applicant device components: end fitting (article 84) and threaded bore (article 88). A portion of the Brosset *et al* plug has a reduced diameter that allows it to extend into the nozzle (Fig. 1, article 22) just as does the applicant's "threaded bore" referred to in amended claim 11 as an internally threaded fitting of reduced diameter formed to the guide tube. It would have been obvious to one skilled in the relevant art at the time of invention to modify the device of the primary reference with the innovation of Brosset *et al* in order to reinforce the lateral movement restriction provided by the fastening means of the nozzle to the guide tube.

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6. Claims 13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Patterson *et al* (U.S. 3,791,466) and Brosset *et al* (5,852,644) as applied to claims 11 and 15 above, and further in view of Barkhurst (5,434,898).

The relevant aspects of the two primary prior art references have been discussed in section 5 of this Office action. Even if Patterson *et al* and Brosset *et al* could be construed as failing to disclose that it is obvious to secure grid inserts to grid cells by welding them, Barkhurst shows that the use of welding and intersection welds in a nuclear fuel assembly is conventional. Hence it would have been obvious to one skilled in the art at the time of invention to use welds or intersection welds to secure the grid insert within a cell of the grid for the reasons set forth in section 5 of this Office action.

Conclusion

1. The prior art made of record in previous correspondence and not relied upon is considered pertinent to applicant's disclosure.
2. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

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will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alexandra Awai whose telephone number is (517) 272-3079. The examiner can normally be reached on 8:30-5:00 Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jack Keith can be reached on (571) 272-6878. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

AA
August 3, 2005


JACK KEITH
PRIMARY EXAMINER
SPE 3663